MOOCs as part of the university curriculum: A case study

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Abstract: *Massive Open Online Courses (MOOCs) have been widely part of the educational landscape since 2012. Over the last decade, they have seen, on the one hand, a massive development associated with the emergence of platforms such as Coursera, edX, Udemy or FutureLearn. Still, at the same time, it has become clear that they cannot be considered as a substitute for traditional formal university education. At the Department of Information Studies and Library Science at Masaryk University, MOOCs are offered to students as part of a particular course in which they receive support and feedback. The learning is also linked to credits, which increases students' motivation to complete the course. The research will work with data from questionnaires in the first week and at the end of the course (n=18). The research will offer insights for running other similar courses based on the data. University support in terms of motivation and a sense of security is crucial. Students show high completion rates if they study the course as part of their curriculum. On the other hand, they name their inability to work well with time and organise their tasks as a significant barrier.*

Keywords: *MOOC; time management; tutoring; design process; university education; curriculum*

1. Introduction

Defining a MOOC takes work. Baggaley (2013) argues that it is a transformation of traditional distance education courses only in a more straightforward and more impersonal form - no teachers, no fees and many students in one course, which is also adapted to the methods of working with them. His overall view of the MOOC phenomenon is very sceptical. Zemsky (2014) faults them for being too atomistic and having little interconnectedness. Veletsianos and Shepherdson (2015) emphasise MOOCs' dynamic and open nature compared to other forms of education, while Hew and Cheung (2014) see MOOCs as a form of a relaxed e-learning environment. Badali et al. (2022) no longer define MOOCs and understand them as a type of learning implemented on specific e-learning platforms.

In general, it can be argued that more than 90% of those enrolled never complete the course (Eriksson et al., 2017; Narayanasamy & Elçi, 2020), but it depends on the specific metrics used to measure learning failure as well as the MOOC definition itself. Henderikx et al. (2017) even

put the failure rate between 90-98%. For example, this extreme value is consistent with the findings of Belanger and Thornton (2013) from Duke University, where the success rate was only 2%. As Cheng et al. (2022) state, exploring high dropout rates is one of the important research topics in the design of MOOCs. According to Badali et al. (2022), the retention rate of MOOCs is between 3% and 15% (Deshpande & Chukhlomin, 2017; Liyanagunawardena et al., 2013).

There may be several reasons for failure to study. On the one hand, the educational institution fails to meet the student's requirements (poor student performance). On the other hand, there can be a wide range of motivations for students not to complete the course, as their motivation is not the certificate but, for example, specific knowledge, experience or gain of specific information (Henderikx et al., 2017). However, a lack of motivation can also be a reason (Moor & Blackon, 2022; Maya-Jariego et al., 2020). This study also highlights that self-dropout is not a relevant metric of course success or quality, which should lead to attention to studying different learning pathways and motivations. Rather than tracking learner-independent metrics, a learner-centred design approach should be the focus of practical learning design. At the same time, the study indicates that interactivity and student engagement in the learning process are among the essential elements leading to retention.

As noted above, some approaches strongly link MOOCs with the platforms to run them. Specific studies of both empirical and theoretical kinds are then also often linked directly to them - examples include Coursera (Bates, 2019; Young, 2012; Knox et al., 2012), edX (Liang et al., 2016; Ferschke et al., 2015) or FutureLearn (Rizvi et al., 2020). The different platforms differ in their course design, the structuring of the learning environment and the actual interactions (Reutemann, 2016; Purkayastha & Sinha, 2021).

The underlying theoretical basis for the design of MOOC courses is connectivism (Downes, 2019; Boyatt et al., 2014), which is characterised by emphasising the role of the independent learner as part of a community that is dynamic and distant (Bell, 2011; Tschofen & Mackness, 2012). However, the theory has many critics (Baggaley, 2013). The whole concept of MOOCs can also face criticism, especially in the context of questionable openness (Wilery, 2007), but also value orientation (Bali & Sharma, 2017; Knox, 2016) or just inadequate interest and fashion (Collin & Saffari, 2015; Oswal, 2017).

The studies mentioned above suggest that specific learning competencies are needed for MOOC learning (Yu et al., 2017; Mee et al., 2018), often associated with the ability for self-regulated

or self-directed learning (Zhu et al., 2021; Albelbisi & Yusop, 2019). Our study will aim to analyse a pedagogical intervention that led to significant learning success in MOOCs for university students.

2. Methodology

The research study is seen as a case study. It is based on data analysis from a questionnaire created in Google Forms, which students filled in during the first two weeks of the study at the end of it (they are almost identical questionnaires). The study mainly compares the changes that occurred in the students. Thus, it does not view the data primarily quantitatively but as part of a broader qualitatively oriented whole.

The questionnaire was presented as voluntary but recommended, and strict anonymity was maintained during data processing. Thus, research does not compare the shifts of individual students during the semester but only observes the population's behaviour as a whole.

Research questions:

1. With what expectations do students start a MOOC course?

2. How do their feelings change during their studies?

3. What type of support do they need during the MOOC?

2.1. Course design

The course is taught in English under ISKM61 MOOC: learning online. It aims to support students in acquiring the skills needed to work independently with MOOCs. Conventional learning strategies and practices do not lead to successful progression through the course in the long term.

The study was divided into two parts. In the first, students had a choice of five short (3-5 weeks) MOOCs focused on general study skills or general competencies. These courses were chosen as relatively more accessible to support students' language and study competencies. The students chose this second course according to their preferences.

Each week, students had to write a short reflective journal in which they had to answer the following questions:

- What are you feeling?

- What did you learn?

- What progress have you made?

- What problems are you solving?

The diary aimed to support the reflective component of the learning process and, at the same time to keep a record of the learning process. Students were assigned a tutor who gave feedback on their entries each week or tried to advise or help them. Besides, there was an initial, interim and final meeting of the students and a group discussion.

The design of the course was systematic development of study competencies so that the graduates of the course could study on their own in the future without a tutor and social support. At the same time, research systematically tried to work to keep the study failure rate as low as possible. In designing the course, I have reflected on the findings that have shaped the various professional studies.

2.2. Research sample

A total of 20 students were enrolled in the course, of which 18 completed the initial questionnaire. Eighteen students also completed the course and consented to their responses to be used in the research. Two students have yet to respond to the initial consultation or submit a single entry in the electronic diary. Four students were international students, and 13 were LIS students. Nine identified as female, eight as male, and one student did not gender-identify. Our research takes the form of small-scale research (Munn & Drever, 1990; Layder, 2012), which does not consider a barrier given the nature of the sample.

The language barrier is often cited as one of the barriers to study. The attached graph (Figure 1) shows that most students were at the B2 level. Four students were admitted to a lower level. The current courses seem structured so that the B2 level is sufficient for learning. In the European university environment, this finding indicates that using MOOCs as part of university education is possible even where a substantial proportion of students still need to develop language competencies. MOOCs are a form of internationalisation in a broader sense (Badali et al., 2022; Troncarelli & Villarini, 2017).
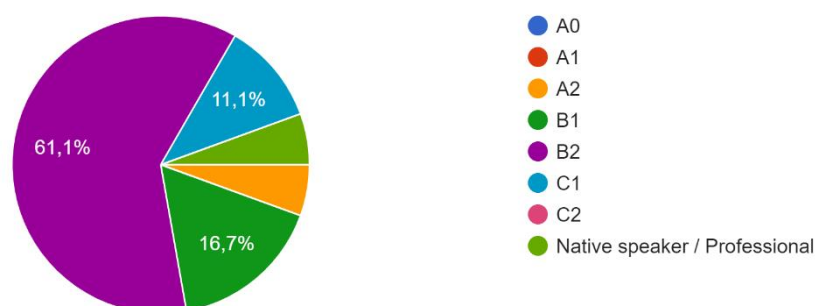
Rate your level of English:
18 odpovědí

Figure 1: Students' self-assessment of language competence (n=18), according to the European Framework of Reference for Languages.

Regarding the previous experience with MOOCs, the research has worked with a relatively heterogeneous group. Some students reported that MOOCs were a familiar way of learning for them, some had experience with specific forms (Google Garage or courses at their home university) or had yet to complete the courses, but for most students, it was a new experience.

3. Results

The results will be structured according to the research questions. At the same time, given that our research is conceived as small-scale research, it will work with a broader qualitative and interpretive base connected with the knowledge of the context in which the research took place.

3.1. With what expectations do students start a MOOC course?

The specifics of the university course must frame the answer to this question. The motivation for credits and the university's internal regulations are evident in its case. Students have to complete the courses, and the condition for completing the ISKM61 MOOC: learning online was to study the MOOC. For some students, it was an optional course. For some, it was a compulsory course.

The first question was what students think when they hear the word MOOC. Findings were aware that, on the one hand, it is a difficult-to-define phenomenon. On the other hand, it is a socially known and discussed topic.

Students' perceptions of MOOCs are positive:

"They are online courses that are generally open to everybody. They enable people worldwide to attend classes and learn skills in fields that would not be otherwise possible for them."

They are fantastic tool for learning.

"MOOCs are very popular. I tried several during my studies and have mixed feelings about them. I like that I can organise my studying, but I need more motivation to finish the courses. I am also worried about whether I can learn more complicated issues through these courses."

"I think it is a good opportunity to learn for those with reduced conditions regarding their free time or ability to travel to school."

At the same time, the last two answers also clearly show a particular concern of the students about whether they will be able to cope with the study and whether it will be associated with any other problems. From the interviews with the students during the first meeting, this concern was partly offset by the fact that they had enrolled in a university course that could help them with any problems.

The second question was aimed directly at student motivation. In the previous answer, some students defined MOOCs as a tool to learn whatever they enjoy or as a means to achieve learning freedom. The question "Why do you want to study MOOC courses? What do you want to learn in them?" aims to name learning needs and goals.

For some students, there was an essential dimension of experimentation or seeking experience:

"I am not sure what I want to learn. I am here mostly for the experience."

"I find them interesting, and I like the concept. I would love to learn about technology in education and also something about data management."

"I want to try a new form of studying. I have always studied in a concrete course at my university, led by a concrete person. This form of studying will be new and challenging because I must organise my time well."

So for some students, it is not the content of the individual courses that is important but the search for experience with the form. What matters for some is that MOOCs can complement what is missing in the university curriculum of their home university or expand their knowledge portfolio to include subjects they need for job validation:

> *"I want to learn new skills that are not taught in my degree but are still relevant to me. I want to learn more about new technology and coding for my curiosity because I aspire to work in a library where these tools become increasingly used.*

> *"I would like to use this opportunity to study data engineering in the Azure platforms, which will help me later."*

The student's reflection after the end of the semester was interesting when they spiked about their motivations for further MOOC study, already outside the university course. Essentially all of them stated that they wanted to continue their studies:

> *"What I like about MOOCs is the ability to focus just on one topic, which I often do not see in formal education where I had to pick a study program and go through some classes that do not meet my interests."*

> *"As it is organised to the multiple weeks, it is beneficial to plan your studying and not be overwhelmed with lots of information."*

> *"I can decide when and how much I want to learn each week. Also, they are online, so I do not have to go to the university."*

> *"They offer a great opportunity for learning topics I will not be able to learn on my own (or at school or university). Also, they allow me to study at my own pace in my free time, so there is no need to worry about being somewhere on time. It works well in my schedule (university/part-time work)."*

The critical point is that students rate the MOOC format as beneficial for themselves based on reflection on their studies. This suggests that if a university can create the conditions for and support students' own MOOC learning, MOOCs can become part of the university curriculum and the individual student's learning environment. My curiosity and willingness to experiment turned into a positive acceptance of this kind of educational form based on experience.

3.2. *How do their feelings change during their studies?*

While the first question was primarily qualitative, the second looked at a quantitative comparison of the changes in feelings experienced by the students. Students voted on a five-point scale (I feel it strongly - I do not feel it) for five emotions that the literature describes as significant for MOOCs - anticipation, concern, stress, satisfaction and certainty. The students

conducted self-assessments, so analysing the individual bars in the graph is not easy as these are subjective statements. However, observing the trends that emerge in the data is essential.
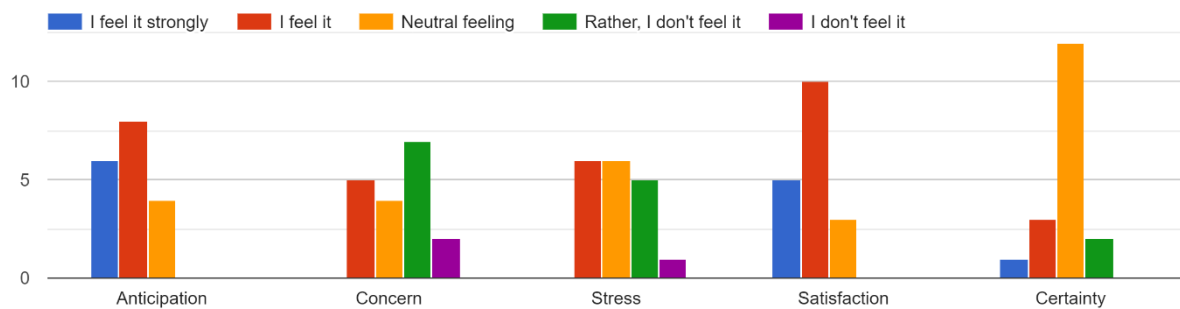
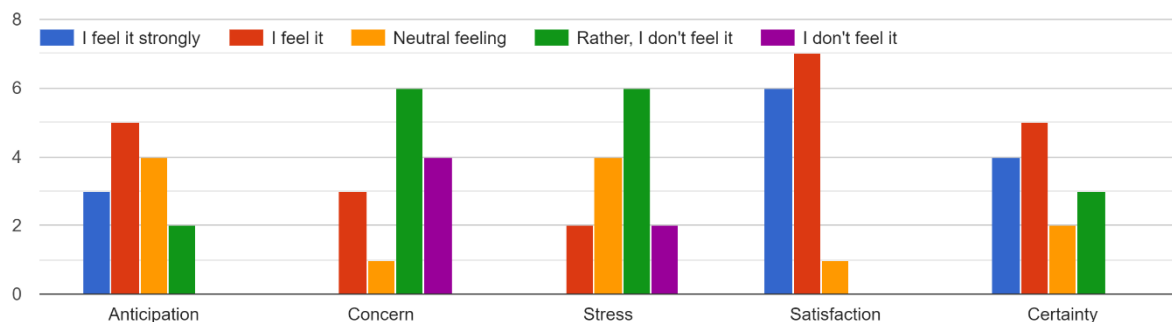*Figure 2: Pre-study data (n=18).*

Figure 3: Post-course data (n=14).

The partial expectation shift shows that students have gained some experiences during the course that transform what they expect. In the context of the first research question, it can be said that they know what they can look forward to or expect after the course.

It can be considered a crucial shift in the parts of concern and stress. The course has quite fundamentally helped students to reduce fears and stress and create a sense of confidence (last column). Thus, one of the fundamental benefits that can be gained from implementing MOOCs in a university setting is the transfer of experience and the creation of a certain sense of inner security and self-confidence. The psychological aspect is essential, and the course supported it.

At the same time, it can also see the reinforcement of a sense of satisfaction. Only one student did not feel satisfied after the course. The data suggest that the study was relatively easy for the students and that they had to exceed their limits or capabilities, but it created a safe experiential space for them. The interviews also suggest that it is beneficial in terms of educational effect if an introductory university methods-oriented course is less demanding in terms of content and creates a space for students to gain good educational habits rather than stressing students with demands that may lead to partial failures. It should be remembered that, despite the three meetings within the semester and the journal writing each week, this is an online course in which motivation and social connections are lower than in a presessional course.

3.3. What type of support do they need during the MOOC?

As mentioned above, with some university support, students can gain experience with MOOCs and be successful in their studies. However, what kind of support is involved? Four factors emerged as necessary in our research. In Figure 4 and Figure 5, students chose between the first four options and could write in the others.

The ability to work with time seems crucial from the students' answers (and this topic was also the most frequently mentioned in the meetings). Online learning can be challenging because it can be procrastinated, has no fixed schedule and requires a high degree of self-regulation that students need to improve, or at least declare. Related to this is the relatively high influence of extrinsic motivation (in the case of our course, credits). In general, students perceive that working with time and motivation, which is extrinsic, is essential for completing the course.

The influence of the tutor is also relatively stable and highly rated. The idea that some materials on how to study would help students develop their study competencies is proving somewhat false. Their gradual decline between the pre-and post-course situation is evident, which can be attributed to both the increasing experience of the students and the lesser effectiveness of such learning resources.

What would you need in order to feel that you will study well in MOOC courses?
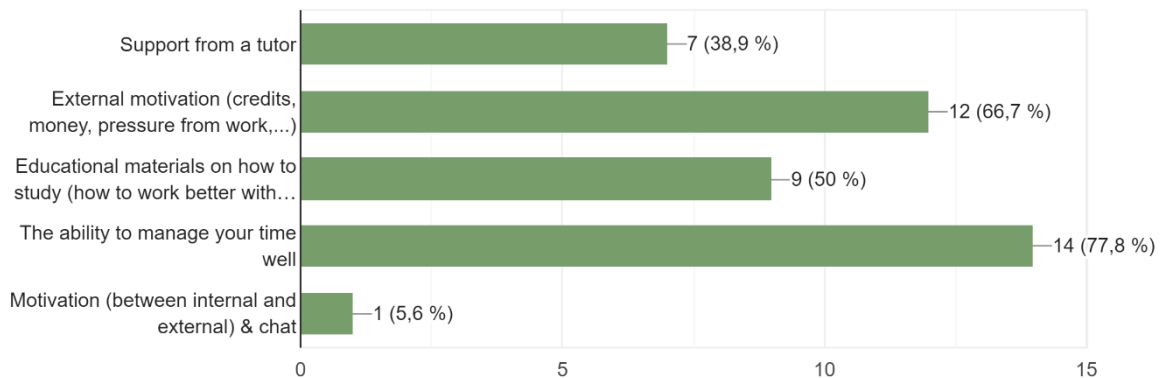18 odpovědí

Figure 4: Expected support needs during the MOOC - before starting (n=18).

What would you need in order to feel that you will study well in MOOC courses?
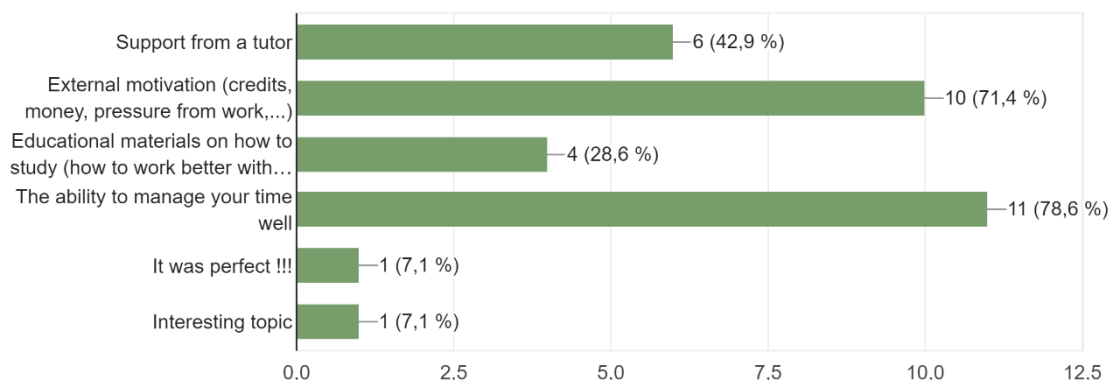14 odpovědí

Figure 5: Expected support needs during the MOOC - at the end (n=14).

Students' comments before the beginning of the course will be directed to extrinsic motivation:

> *"I would love a certificate I can use in my job application; for example, I also need to work on my time management because I am the queen of procrastination."*

Similarly, before the course began, students commented on their time management skills:

> *"Now, at the beginning of the semester, I need to set up time management and study routines. The hardest task for me is to combine work and study appropriately."*

> *"I need deadlines, so I do not procrastinate too much + my motivation is work-related. I want to perform well."*

> *"Better time organisation."*

After the course, they then highlight the following about their support needs:

> *"As a learner, external motivation has always greatly supported my learning (recognition at work, among friends, and family). Also, since the learner needs to be self-directed in MOOCs, I find it important to have good time management skills (know how to manage my time)."*

> *"Better time-management."*

> *"Maybe I will reach a point in my life where I can go through a MOOC without any external motivation - purely out of curiosity and enjoyment."*

The last exciting example is that students perceive extrinsic motivation as something terrible that needs to be eliminated. Education is supposed to be for fun or to satiate an internal sense of duty or desire. This cultural narrative only benefits a few students and, on the contrary, burdens them in their studies. Interestingly - in contrast to the beginning of the course - there is a clear emphasis on the work of the tutor:

> *"Creating a specific setting to learn my classes can help. For instance, going to the library to learn instead of staying at home help me focus. Learning with others and a tutor who can give feedback also help with long-term motivation."*

> *"The feedback from the tutor was great! She helped to motivate me. I wanted the tutor to refrain from writing me comments on the submission. As I said at the online meeting, the organisational chart with our progress was also great. Credits for completing a course are a nice bonus."*

From our data, it seems that learning MOOCs is stressful for students, as expressed by one of the students when talking about the different forms compared to regular study:

> *"For me, MOOC needs to have interesting topics, and it has to keep being interesting throughout the course. I do not see joining a MOOC as a hard commitment, so I would not have any issue dropping out if it felt like I was not getting anything new."*

An emphasis on completion, good time management, regulation or care from the tutor, and the notion that they should learn just for themselves. On the other hand, they acknowledge that

MOOCs are not an everyday learning experience and that they are different. This may be why a well-managed university-level learning experience can be so essential for further learning activities that MOOCs can become a regular part of the learning environment of individual students.

4. Discussion

White (2015) talks about the MOOC phenomenon as a problem for universities that may represent a competitor changing the educational landscape. Pelletier et al. (2022), in their Educase report, highlight that universities need to look for ways to transform their curricula to make them accessible to what was previously described as 'non-traditional' students. The authors point out that 'traditional' students are disappearing, and the whole university environment is becoming non-traditional. Therefore, looking for ways to dynamise it and add beneficial and meaningful formats to students is necessary. The data analysed shows that MOOCs can fulfil this role in higher education.

Regarding students' motivation or needs during the learning process, one can agree with Snyder (2012) that students find the possibility of atomic choice of educational content attractive. Milheim (2013) sees this phenomenon as a threat to the integrity of learning and scholarship. However, if MOOCs are part of university education, this is not a problem but a challenge. Many issues remain big, such as the need to monitor the quality of the courses or the protection of personal data (Milheim, 2013).

Cole and Timmerman (2015) articulate some concerns students may have during their studies - concerns about technology, communication, and the learning process. Our research also shows that fears are a big issue for learners and form a barrier to effective learning in MOOCs. From our results, the presence of a university course within which the learning occurs, or the support of societies or other tools, can help students overcome these fears. Zhou (2016) puts the concerns in the context of specific isolation or autonomy, a topic also addressed by our learning activity's design. Autonomy is not something that students automatically have in their studies, but it needs to be gradually developed in a safe environment.

For our study, the most challenging issue to deal with was time management (Inganah et al., 2023), which turns out to be a much broader and more global problem of the entire educational process in tertiary education with many implications for learning outcomes (Gulua & Kharadze, 2022; Khiat, 2022). Gant et al. (2022) consider time management and the support of educational institutions in its development as a prerequisite for successful MOOCs, which our data support.

Wei (2022) also arrives at similar results for younger students. Doo et al. (2023) point out that surprisingly few studies link self-directed learning or self-directed learning and MOOCs, but that the link between time management and success in studying MOOCs exists and is relatively strong. However, it needs to be considered with other dominant factors, such as metacognitive or social factors.

5. Conclusion

Our study offered a research-by-design approach view (Roggema, 2016; Pasqui, 2022). The motivations for why students should be able to study MOOCs as part of the curriculum are apparent - they are a way to improve the quality of the actual teaching at regional universities, they support the intercultural and internationalisation component of education, they are an educational phenomenon related to lifelong learning, and they are a cultural and social issue. This conviction corresponds to part of the requirements of the students themselves.

Supporting students through university education emerges as crucial in our research. University support is necessary for students' study safety, learning strategies, and especially extrinsic motivation. Studying a course is valuable for students to gain specific knowledge and skills, especially in developing learning skills and experience in this kind of education. In our research, promoting the ability to manage and organise time appears to be crucial, which seems to be a global phenomenon; on the contrary, the expected barrier in the form of language competence is described in the literature (Bralić & Divjak, 2026; Tahirsylaj et al., 2018) rarely appeared in the students' statements and realistically constituted a problem for one student of the whole course.

Therefore, the creation of similar courses forming a "wrapper" or "environment" for MOOC learning in a university environment can be recommended. It can be expected to enable students to achieve good results in MOOC learning. However, this statement does not mean that there are not several other issues that should be researched. It is essential to critically reflect on the benefits of MOOCs as forms of virtual mobility and, in particular, to analyse how to deal with the time management phenomenon discussed above in learning skills. At the same time, it should be kept in mind that our research was small-scale research and that to make generalisable judgments, more extensive quantitative research would need to be carried out, taking away from the specificities of one class in one particular year of study.

Reference

Albelbisi, N. A., & Yusop, F. D. (2019). Factors influencing learners' self–regulated learning skills in a massive open online course (MOOC) environment. *Turkish Online Journal of Distance Education*, *20*(3), 1-16.

Badali, M., Hatami, J., Banihashem, S. K., Rahimi, E., Noroozi, O., & Eslami, Z. (2022). The role of motivation in MOOCs' retention rates: a systematic literature review. *Research and Practice in Technology Enhanced Learning*, *17*(1), 1-20.

Baggaley, J. (2013). MOOC is rampant. *Distance education*, *34*(3), 368-378.

Bali, M. A., & Sharma, S. (2017). Envisioning post-colonial MOOCs: Critiques and ways forward. In *Massive Open Online Courses and Higher Education* (pp. 26-44). Routledge.

Bates, T. (2019). What's right and what's wrong about Coursera-style MOOCs. *EdTech in the Wild*.

Belanger, Y., & Thornton, J. (2013, Febraury 5). *Bioelectricity: A quantitative approach: Duke University's first MOOC*. Durham, NC: Duke University. Retrieved from http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/6216/Duke_Bioelectricity _MOOC_Fall2012.pdf?sequence=1

Bell, F. (2011). Connectivism: Its place in theory-informed research and innovation in technology-enabled learning. *International Review of Research in Open and Distributed Learning*, *12*(3), 98-118.

Boyatt, R., Joy, M., Rocks, C., & Sinclair, J. (2014). What (Use) is a MOOC?. In *The 2nd international workshop on learning technology for education in cloud* (pp. 133-145). Springer Netherlands.

Bralić, A., & Divjak, B. (2016, October). Use of MOOCs in traditional classroom: blended learning approach. In *EDEN Conference Proceedings* (No. 2, pp. 34-43).

Cole, A. W., & Timmerman, C. E. (2015). What do current college students think about MOOCs. *MERLOT Journal of Online Learning and Teaching*, *11*(2), 188-201.

Collin, S., & Saffari, H. (2015). Le MOOC et le «hype»: analyse critique des discours médiatiques sur les MOOC. *Revue internationale des technologies en pédagogie universitaire*, *12*(1-2), 124-137.

Deshpande, A., & Chukhlomin, V. (2017). What makes a good MOOC: A field study of factors impacting student motivation to learn. *American Journal of Distance Education, 31*(4), 275–293. https://doi.org/10.1080/08923647.2017.1377513*

Doo, M. Y., Zhu, M., & Bonk, C. J. (2023). Influence of self-directed learning on learning outcomes in MOOCs: A meta-analysis. *Distance Education*, *44*(1), 86-105.

Downes, S. (2019). Recent work in connectivism. *European Journal of Open, Distance and E-Learning (EURODL)*, *22*(2), 113-132.

Eriksson, T., Adawi, T., & Stöhr, C. (2017). "Time is the bottleneck": A qualitative study exploring why learners drop out of MOOCs. *Jounal of Computing in Higher Education, 29*(1), 133–146. https://doi.org/10.1007/s12528-016-9127-8

Ferschke, O., Yang, D., Tomar, G., & Rosé, C. P. (2015). Positive impact of collaborative chat participation in an edX MOOC. In *Artificial Intelligence in Education: 17th International Conference, AIED 2015, Madrid, Spain, June 22-26, 2015. Proceedings 17* (pp. 115-124). Springer International Publishing.

Finardi, K., & Tyler, J. (2015). The role of English and technology in the internationalization of education: insights from the analysis of MOOCs. In *EDULEARN15 Proceedings* (pp. 11-18). IATED.

Gan, T. Y., Yusop, F. D., & Chin, H. L. (2022). Development Of A Scale To Measure Students'learning Satisfaction And Self-Regulated Learning Strategies In Moocs. *Mojes: Malaysian Online Journal of Educational Sciences*, *10*(3), 1-12.

Gulua, E., & Kharadze, N. (2022). Impact of time management on personal development of master's degree students. *Humanities Today: Proceedings*, *1*(1), 64-74.

Henderikx, M. A., Kreijns, K., & Kalz, M. (2017). Refining success and dropout in massive open online courses based on the intention–behavior gap. *Distance Education*, *38*(3), 353-368.

Hew, K.F. and Cheung, W.S. (2014), "*Students' and instructors' use of massive open online courses (MOOCs): motivations and challenges*", Educational Research Review, Vol. 12, pp. 45-58.

Cheng, J., Yuen, A. H., & Chiu, D. K. (2022). Systematic review of MOOC research in mainland China. *Library Hi Tech*, (ahead-of-print).

Inganah, S., Darmayanti, R., & Rizki, N. (2023). Problems, Solutions, and Expectations: 6C Integration of 21 st Century Education into Learning Mathematics. *JEMS: Jurnal Edukasi Matematika Dan Sains*, *11*(1), 220-238.

Khiat, H. (2022). Using automated time management enablers to improve self-regulated learning. *Active Learning in Higher Education*, *23*(1), 3-15.

Knox, J. (2016). Posthumanism and the MOOC: opening the subject of digital education. *Studies in Philosophy and Education*, *35*, 305-320.

Knox, J., Bayne, S., Ross, J., Macleod, H., & Sinclair, C. (2012). MOOC Pedagogy: the challenges of developing for Coursera. *Association for Learning Technology (ALT) Online Newsletter*, (28).

Layder, D. (2012). *Doing excellent small-scale research*. Sage.

Liang, J., Yang, J., Wu, Y., Li, C., & Zheng, L. (2016, April). Big data application in education: dropout prediction in edx MOOCs. In *2016 IEEE second international conference on multimedia Big data (BigMM)* (pp. 440-443). IEEE.

Liyanagunawardena, T. R., Adams, A. A., & Williams, S. A. (2013). MOOCs: A systematic study of the published literature 2008–2012. *International Review of Research in Open and Distributed Learning, 14*, 202–227. https://doi.org/10.19173/irrodl.v14i3.1455

Maya-Jariego, I., Holgado, D., González-Tinoco, E., Castaño-Muñoz, J., & Punie, Y. (2020). Typology of motivation and learning intentions of users in MOOCs: the MOOCKNOWLEDGE study. *Educational technology research and development*, *68*, 203-224.

Mee, C. K., binti Salam, S., & Sui, L. K. M. (2018). Undergraduate's perception on Massive Open Online Course (MOOC) Learning to foster employability skills and enhance learning experience. *International Journal of Advanced Computer Science and Applications*, *9*(10).

Milheim, W. D. (2013). Massive open online courses (MOOCs): Current applications and future potential. *Educational Technology*, 38-42.

Moore, R. L., & Blackmon, S. J. (2022). From the Learner's perspective: A systematic review of MOOC learner experiences (2008–2021). *Computers & Education*, 104596.

Munn, P., & Drever, E. (1990). *Using Questionnaires in Small-Scale Research. A Teachers' Guide*. Scottish Council for Research in Education, 15 St. John Street, Edinburgh, EH8 8JR, Scotland, United Kingdom..

Narayanasamy, S. K., & Elçi, A. (2020). An effective prediction model for online course dropout rate. *International Journal of Distance Education Technologies (IJDET), 18*(4), 94–110. https://doi.org/10.4018/IJDET.2020100106

Oswal, S. K. (2017). MOOCs in the Global Context. In *Handbook of Research on Writing and Composing in the Age of MOOCs* (pp. 39-55). IGI Global.

Pasqui, G. (2022). Afterword. Learning from Research by Design Approaches for a WEF-Sensitive Planning Culture. In *Territorial Development and Water-Energy-Food Nexus in the Global South: A Study for the Maputo Province, Mozambique* (pp. 255-259). Cham: Springer International Publishing.

Pelletier, K., McCormack, M., Reeves, J., Robert, J., Arbino, N., Dickson-Deane, C., ... & Stine, J. (2022). *2022 EDUCAUSE Horizon Report Teaching and Learning Edition* (pp. 1-58). EDUC22.

Purkayastha, N., & Sinha, M. K. (2021). Unstoppable study with MOOCs during covid 19 pandemic: a study. *Library Philosophy and Practice*, *4791*.

Reutemann, J. (2016). Differences and Commonalities–A comparative report of video styles and course descriptions on edX, Coursera, Futurelearn and Iversity. *European Stakeholders Summit on experiences and best practices in and around MOOCs*.

Rizvi, S., Rienties, B., Rogaten, J., & Kizilcec, R. F. (2020). Investigating variation in learning processes in a FutureLearn MOOC. *Journal of computing in higher education*, *32*, 162-181.

Roggema, R. (2016). Research by design: Proposition for a methodological approach. *Urban science*, *1*(1), 2.

Snyder, M. D. (2012). Much ado about MOOCs. *Academe* , *98*(6), p. 55.

Tahirsylaj, A., Mann, B., & Matson, J. (2018). Teaching creativity at scale: Overcoming language barriers in a MOOC. *International Journal of Innovation, Creativity and Change*, *4*(2), 1-19.

Troncarelli, D., & Villarini, A. (2017). Internationalization of higher education and the use of MOOCs to improve second language proficiency: the MOVE-ME project. *Beyond the language classroom: researching MOOCs and other innovations*, 5-14.

Tschofen, C., & Mackness, J. (2012). Connectivism and dimensions of individual experience. *International Review of Research in Open and Distributed Learning*, *13*(1), 124-143.

Veletsianos, G. and Shepherdson, P. (2015), "*Who studies MOOCs? Interdisciplinarity in MOOC research and its changes over time*", The International Review of Research in Open and Distributed Learning, Vol. 16 No. 3, pp. 1-17.

Wei, T. (2022). *The experience of secondary students studying MOOCs: a case study of a teacher-student mentoring programme in Hong Kong* (Doctoral dissertation, University of Bristol).

White, S., Leon, M., & White, S. (2015, May). MOOCs Inside Universities. In *Proceedings of the 7th International Conference on Computer Supported Education* (pp. 109-115).

Wiley, D. (2007). Intro Open Ed Syllabus. Salt Lake City: University of Utah. Retrieved from http://web.archive.org/web/20130119201933/http://www.opencontent.org/wiki/index.php?title=Intro_Open_Ed_Syllabus

Young, J. R. (2012). Inside the Coursera contract: How an upstart company might profit from free courses. *The Chronicle of Higher Education*, *19*(07), 2012.

Yu, H., Miao, C., Leung, C., & White, T. J. (2017). Towards AI-powered personalization in MOOC learning. *npj Science of Learning*, *2*(1), 15.

Zemsky, R. (2014). With a MOOC MOOC here and a MOOC MOOC there, here a MOOC, there a MOOC, everywhere a MOOC MOOC. *The Journal of General Education*, *63*(4), 237-243.

Zhou, M. (2016). Chinese university students' acceptance of MOOCs: A self-determination perspective. *Computers & Education*, *92*, 194-203.

Zhu, M. (2021). Enhancing MOOC learners' skills for self-directed learning. *Distance Education*, *42*(3), 441-460.

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